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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,588	10/08/2004	Roelf Anco Jacob Groenhuis	NL02 1100 US	9262

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PHILIPS ELECTRONICS NORTH AMERICA CORPORATION
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EXAMINER

ZARNEKE, DAVID A

ART UNIT	PAPER NUMBER
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2891

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/510,588

Applicant(s)

GROENHUIS ET AL.

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,6-9 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 6-9, 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 4 contains the limitation "the electric elements are interconnected by an interconnect track that is defined in the first metal layer, while a corresponding interconnect track is absent in the second metal layer", this limitation is contrary to the specification and figures in that the specification and figures clearly recite forming the interconnect track in the SECOND metal layer, not the FIRST metal layer. Nowhere in the specification or in any of the figures is it stated that the interconnect track can be in the FIRST metal layer.

For examination purposes, it was assumed that the claim intended to recite the interconnect track was formed in the second metal layer.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 recites the limitation "the envelope" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Response to Arguments

Applicant's arguments filed 12/20/06 have been fully considered but they are not persuasive.

First, it is argued that Coffman doesn't allow for independent patterning of the two metal layers. Please note that Coffman clearly teaches independent patterning of the two metal layers (figures 14-17).

Second, it is argued that Coffman fails to teach the limitations of claim 9. Please note that it was never argued that Coffman taught these limitations. These limitations were, and are still, rejected under 35 USC 103, see rejection below.

Lastly, it is argued that Ohsawa teaches way form the present invention. Please note that this rejection has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4, 6, 7, 8, 13, 14, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Coffman, US Patent 6,451,627.

Coffman teaches an electronic device comprising a carrier having, between a first side and an opposite second side,

- a first etch mask [130 & 133],

- a first patterned metal layer [124],

- a patterned intermediate layer [122],

- a second patterned metal layer [126] and a second etch mask [134 & 136] for use of etching of the second metal layer,

- wherein the first and second etch mask each have an adhesive layer for solder (3, 2+),

- wherein the first patterned metal layer is electroconductively connected to an electric element [40] and to the second metal layer, and the first patterned metal layer further includes parts projecting with respect to the intermediate layer (mold lock areas [140]), the projecting parts of the first metal layer are anchored in the envelope [148] which electric element is present on the first side of the carrier (through undercut areas [142] {5, 66+}),

- wherein contacts of the electric element are electroconductively connected to the first metal layer (through wire bonds [146]), and

- wherein the electronic device includes a first and a second electric element (6, 30+), the electric elements are interconnected by an interconnect track that

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is defined in the first (sic: second) metal layer while a corresponding interconnect track is absent in the second (sic: first) metal layer (Figures 15 and 16).

Regarding claim 6, Coffman teaches the first and the second etch mask comprise an adhesive layer for solder (3, 2+).

With respect to claim 7, Coffman teaches the adhesive layer for solder comprises a material selected from the group composed of Ag (3, 2+), NiPd, NiPdAu.

As to claim 8, Coffman teaches the intermediate layer comprises an electroconductive material that can suitably be used as a solder stop (5, 36+).

In re claim 13, Coffman teaches the intermediate layer is made from a material that can be selectively etched with respect to the first patterned metal layer (5, 36+).

Regarding claim 14, Coffman teaches the intermediate layer is a metal (5, 36+).

With respect to claim 16, Coffman teaches the first electric element is a semiconductor element which is placed on the first side of the carrier with a flip-chip technique (3, 26+).

As to claim 17, Coffman teaches connection conductors [152] are defined in the second patterned metal layer and the corresponding etch mask, said connection conductors are laterally displaced with respect to contacts in the semiconductor element (figure 17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coffman, US Patent 6,451,627, as applied to claim 4 above.

Regarding claims 9 and 15, though Coffman, which teaches the use of molybdenum or other metals (5, 36+), fails to specifically teach the intermediate layer comprises a material selected from the group composed of Al, an alloy of Al, FeNi, FeCrNi and stainless steel, but does teach that the first patterned metal layer and the second patterned metal layer contain copper (5, 36+), it would have been obvious to one of ordinary skill in the art at the time of the invention to use Al, an alloy of Al, FeNi, FeCrNi or stainless steel as the intermediate layer of Coffman because these materials are known equivalent materials used in the art, especially in light of the specification teaching as much (1, 19+). The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution (Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA

1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

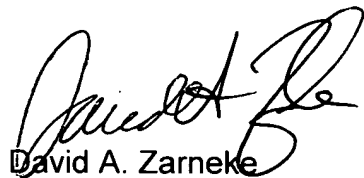
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-Th 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1722. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David A. Zarneke
Primary Examiner
March 8, 2007